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Lyndon B. Johnson Space Center Houston, Texas 77058

Interface Control Document (ICD) for the Human Research Facility Ultrasound System

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Interface Control Document (ICD) for the Human Research Facility Ultrasound System

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ACRONYMS AND ABBREVIATIONS

EXPRESS Expedite the Processing of Experiments for Space Station

HRF Human Research Facility

ICD Interface Control Document

1.0 SCOPE

This Interface Control Document (ICD) defines and controls the interface between the Human Research Facility (HRF) Ultrasound unit and the Space Station EXPRESS (EXpedite the PRocessing of Experiments to Space Station) Rack, the HRF Workstation, and other equipment, not necessarily identified at this time, which may need to be connected to the HRF Ultrasound unit.

The Ultrasound System interfaces to be defined and controlled include: Structural and Mechanical, Electrical, Command and Data Handling, Audio/Video, Thermal Control, Waste Gas Vent and Vacuum, and Nitrogen. No attempt has been made to define the Human Factors user interfaces or Software interfaces; that task is considered out of scope for the purposes of this document.

2.0 <u>DOCUMENTATION</u>

Specifications pertaining to a particular interface have been included on the respective Interface Control Drawing. Requirements for Ultrasound System interfaces flow down from the Hardware Requirements Document for the Ultrasound System of the Human Research Facility (LS-71040-1).

3.0 INTERFACES

The Interface Control Drawings are provided in the appendices: Structural and Mechanical Interfaces are in Appendix A, Electrical Interfaces are in Appendix B, Command and Data Handling Interfaces are in Appendix C, Audio/Video Interfaces are in Appendix D, Thermal Control Interfaces are in Appendix E, Waste Gas Vent and Vacuum Interfaces are in Appendix F, and Nitrogen Interfaces are in Appendix G. Table 3-1 below contains the list of interface control drawings contained within each appendix. If no drawings are contained within a particular appendix, a page marked "NOT APPLICABLE" is substituted for the drawing list.

The locations of the front panel connectors on the Ultrasound unit are shown in Figure 3-1. A block diagram showing how the Ultrasound System interfaces with other hardware is shown in Figure 3-2.

TABLE 3-1. LIST OF INTERFACE CONTROL DRAWINGS LOCATED IN APPENDICES

Appendi x	Drawing #	Rev.	Title
A	Not Applicable		
В	SLG46115053		Ultrasound Rack Power Port To EXPRESS Rack Power Connector
С	SLG46115045		Ultrasound RS232 Serial Port To HRF RS232/422 Cable or Adapter Cable Assembly
С	SLG46115047		Ultrasound Physiological Signal Ports To Physiological Signal Device
С	SLG46115056		Ultrasound Rack Data Port To EXPRESS Rack Data Connector
С	SLG46115057		Ultrasound Auxiliary ECG Port To External ECG Device
D	SLG46115046		Ultrasound External Video I/O Port To Common Video Cable
D	SLG46115051		Ultrasound Monitor Port To Workstation Monitor
Е	Not Applicable		
F	Not Applicable		
G	Not Applicable		

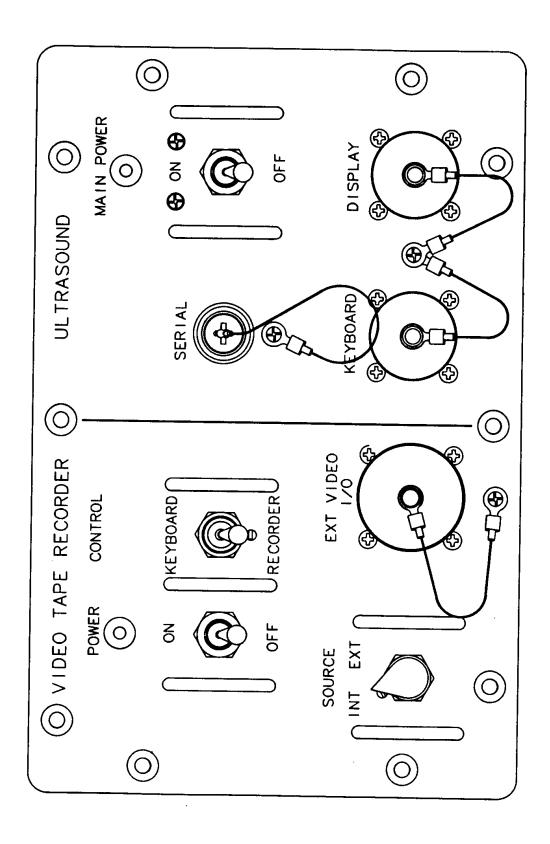


Figure 3-1. Ultrasound Front Panel Connectors

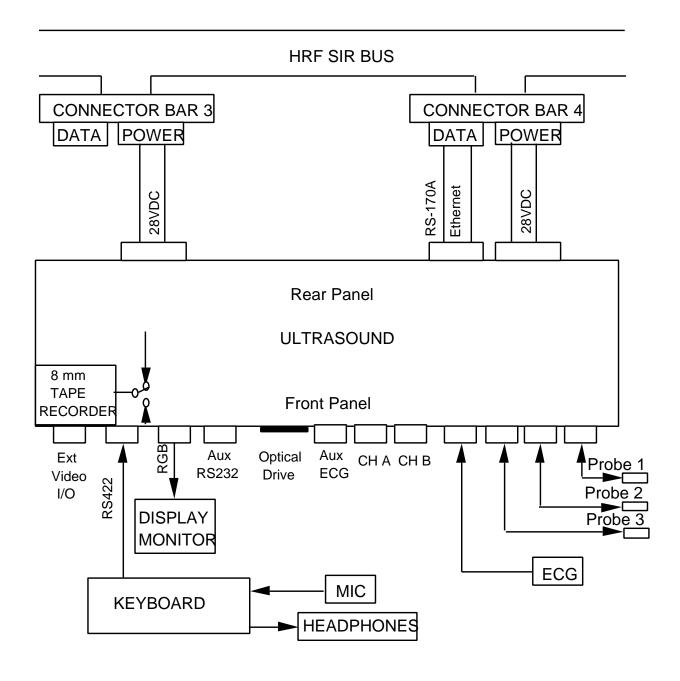


Figure 3-2. Ultrasound Interconnect Block Diagram

APPENDIX A STRUCTURAL AND MECHANICAL INTERFACES

NOT APPLICABLE

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APPENDIX B ELECTRICAL INTERFACES

		RP3 (RP	4) EXPERIMENT CONNECTOR NO.	M83733/3RA018
		ERP3 (ERP4)	CABLE PLUG TYPE NO.	M83733/2RA018
	IENT (NAME AND I.E ack Power RP4)	D. NUMBER)	TO: EXPRESS Rack Power C	onnector
	J	INTERFACE CONTROL DRAI	WING	
			1. Connectors designated	
PROJECT ENG.	PROJECT	INTERFACE CONTROL DRAI	Connectors designated DATE NATIONAL AERONA	AUTICS AND SPACE ADMINISTRATION
PROJECT ENG.			1. Connectors designated DATE NATIONAL AERONA LYNDON B. JOHNS Ultrasound Ra	

	de de la constante de la const			DATA					
FUNCTION	CONTACT SIZE	AMPS	VOLTS	CIRCUIT CLASS	FROM	PIN NO.	то	PIN NO.	REMARKS
Primary +28 VDC	12	20	+28	1 1	RP3 (RP4)	1	ERP3 (ERP4)	1	
Primary 28 VDC Return	12		0	1 1	RP3 (RP4)	2	ERP3 (ERP4)	2	
Continuity	12				RP3 (RP4)	3	7707		Not Connected
Continuity	12				RP3 (RP4)	4			Not Connected
Not used	12		and anon		RP3 (RP4)	5			Not Connected
Secondary +28 VDC	12	20	28	1 1	RP3 (RP4)	6	ERP3 (ERP4)	6	
Secondary 28 VDC Return	12		0	1 1	RP3 (RP4)	7	ERP3 (ERP4)	7	
Not used	12		as as serve		RP3 (RP4)	8			Not Connected
Not used	12				RP3 (RP4)	9	W 104 W PO		Not Connected
Not used	12				RP3 (RP4)	10	7700		Not Connected
Not used	12		W W 2019.		RP3 (RP4)	11			Not Connected
Primary Chassis Ground	12	0	0		RP3 (RP4)	12	ERP3 (ERP4)	12	
Secondary Chassis Ground	12	0	0		RP3 (RP4)	13	ERP3 (ERP4)	13	
Not used	12			****	RP3 (RP4)	14			Not Connected
Not used	12				RP3 (RP4)	15	5775		Not Connected
Not used	12		mm m m		RP3 (RP4)	16	+	~~~~	Not Connected
Fiber Optics	12		5555		RP3 (RP4)	17	AA -AA 100 100		Not Connected
Fiber Optics	12	5875	and and the	77.00	RP3 (RP4)	18	7777		Not Connected
THIS DWG IS USED FOR PIN ASSI	IGNMENTS. THIS	DWG HAS	S NO ASSY TH.	AT CONTAINS	FRACTURE CRIT				
						1 1	DWG NO.	01.04011	C0C0
(1) PER MSFC-SPEC-521, TABLE	E 2.	J	NTERFACE CO	NTROL DRAWI	NG	A		SLG4611	
						REV		SHEET	2 OF :

APPENDIX C COMMAND AND DATA HANDLING INTERFACES

		ELECTRICAL DA	TA INTER	FACE CONTR	OL DRAWING				
the state of the s	<u></u>	ZHIMININGOMOOMPOMOOFPHIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	<u>J4</u>	EXPERIME	NT CONNECTOR NO.	**************************************	DBEE1031Z01	12-130	
			<u>P1</u>	CABLE PLI	JG TYPE NO.		S1031Z012-1	37/6.7-S	
	ENT (NAME AND I.C S232 Serial Port	. NUMBER)	2000	TO:	RS232/422 Cable Assi (p/n: SEG46115685-3 or RS232/422/485/2CH A (p/n: SEG46115594-3	01 or -: kdapter			
	I	NTERFACE CONTR	OL DRAWII	NG					
					. RS232 specification pe . Connectors designated			098)	
PROJECT ENG.	PROJECT	SIGNATURE		DATE			AND SPACE ADMIN		
					LYNDON B. JOHNS	ON SPA	CE CENTER HOUST	TON, TEXAS	
					Ultrasound R- TO HRF RS2 or Adapter	32/422	Dable Assy.		
					CODE IDENT NO. #21356	SIZE A	DWG NO. SLG4611	5045	
		ž.			SCALE N/A	REV		SHEET	1 OF

				DATA					
FUNCTION	CONTACT SIZE	AMPS	VOLTS	CIRCUIT CLASS	FROM	PIN NO.	то	PIN NO.	REMARKS
+5VDC	0.7 mm				J4	1			No Connection
Vref2	0.7 mm		-24 44 44		J4	2			No Connection
Serial Ground	0.7 mm		0	I IV	J4	3	P1	3	Tied to Pin 9
RS422 Transmit High	0.7 mm				J4	4			No Connection
RS422 Transmit Low	0.7 mm				J4	5			No Connection
RS422/RS232 Shield	0.7 mm	0	0		J4	6	P1	6	Shield
RS422 Receive High	0.7 mm				J4	7		*****	No Connection
RS422 Receive Low	0.7 mm		***		J4	8			No Connection
RS422/RS232	0.7 mm		0	IV	J4	9	P1	9	Tied to Pin 3
RS232 Receive	0.7 mm	0.1	±8	I IV	J4	10	P1	10	Digital
RS232 Transmit	0.7 mm	0.1	± 8	IV	J4	11	P1	11	Digital
RS232 Ground	0.7 mm	0.1	0	IV I	J4	12	P1	12	Digital
THIS DWG IS USED FOR F	PIN ASSIGNME	VTS, THIS	3 DWG HAS NO	ASSY THAT C	ONTAINS FRAC	CTURE CR	ITICAL ELEMENTS		
(1) PER MSFC-SPEC-521	, TABLE 2.		INTERFACE CO	NTROL DRAWIN	G	Α		SLG4611	
						REV		SHEET	2 OF

		ELECTRICAL DATA	INTERFACE CONT	ROL DRAWING		
		PS	1 (PS2) EXPE	RIMENT CONNECTOR NO.	***************************************	RN1148PC
gazzzzzzzzzzzzenimmolmácinhóhóbó	горуууууууууууууууууууууууууууууууууууу		P1 CABLE	PLUG TYPE NO.		M642/2-2
		NUMBER) J P		TO: Physiological Signal Devic	е	
PROJECT ENG.	PROJECT	SIGNATURE	DATE	00000000000000000000000000000000000000		ID SPACE ADMINISTRATION E CENTER HOUSTON, TEXAS
				Ultrasound Phy To Physiologica	siologica	al Trigger Ports
				CODE IDENT NO. #21356 SCALE N/A	SIZE A REV	DWG NO. SLG46115047 SHEET 1 OF

				DATA					
FUNCTION	CONTACT SIZE	AMPS	VOLTS	CIRCUIT CLASS	FROM	PIN NO.	TO	PIN NO.	REMARKS
Sleeve (S)	N/A]	PS1 (PS2)	S	P1	S	Ground
Tip (T)	N/A		100-100 DM	Ш	PS1 (PS2)	T	P1	Т	0
Ring (R)	N/A			III (I)	PS1 (PS2)	R	P1	R	1 (Mono:Ground)
THIS DWG IS USED FOR I	PIN ASSIGNMEN	 TS THIS	DWG HAS NO	ASSY THAT C	CONTAINS ÉRACT	URE CRI	 	-NTS	
11100110100000101						SIZE	DWG NO.		.1
(1) PER MSFC-SPEC-52	1, TABLE 2.		INTERFACE CON	ITROL DRAWI	NG	А	í	SLG46115	047
• •				REV	£	SHEET	2 OF 2		

			ELECTRICAL DATA INTERFAC	CE CONTROL DRA	WING				
**************************************			RD4	EXPERIMENT	CONNECTOR NO.	·	M83733/3RA	131	
			PR1D	4 RACK PLUG T	YPE NO.		M83733/2RA	131	
	EXPERIMENT (NAI		TERFACE CONTROL DRAWING	4. F 3. E 2. E	XPRESS Rack Data Conner Payload data formats per Ethernet data interface p thernet 10baseT specifica 02.3/ISO 8802-3	· D683- rotocol	per D683-46319-	1	
PROJEC	TENG	PROJECT	SIGNATURE	1. C	Connectors designated polynomial NATIONAL AERONAUTIC	~~~~~		RATION	·············
11100000	r b bar 1 hali.		2.2.7.7.7.7.7.		LYNDON B. JOHNSON SF				
					Ultrasound Rack Di TO EXPRESS Rack				
					CODE IDENT NO. #21356 SCALE N/A	SIZE A REV	DWG NO. SLG461	15056 SHEE	r 1 OF 6

				DATA					
FUNCTION	CONTACT	AMPS	VOLTS	CIRCUIT	FROM	PIN	TO	PIN	REMARKS
	SZE			CLASS		NO.		NO.	
EEE 488 DIO1	22D				RD4	1			Not Connected
EEE 488 DIO2	220				RD4	2	7570	7700	Not Connected
Open	22 D				RD4	3	*****		Not Connected
Discrete 1 High	22D		****	1	RD4	4			Not Connected
Discrete 2 High	22D			I	RD4	5			Not Connected
Discrete 3 High	22D .	*****	*****		RD4	6			Not Connected
Time Distribution	22D		****		RD4	7			Not Connected
Open	22D				RD4	8			Not Connected
Continuity	22D		***		RD4	9	RD4	121	Jumper
EEE 488 DIO3	22D				RD4	10		4033	Not Connected
Open	22D				RD4	11	****	J1 74 16 75	Not Connected
Open	22D				RD4	12			Not Connected
Discrete 1 Low	22D				RD4	13	0000	****	Not Connected
Discrete 2 Low	22D				RD4	14			Not Connected
Discrete 3 Low	22D		***		RD4	15			Not Connected
Time Distribution	22D				RD4	16		***	Not Connected
Open	22D				RD4	17		****	Not Connected
EEE 488 DIO4	220				RD4	18	~~~		Not Connected
EEE 488 EIO	220		er n n	*****	RD4	19			Not Connected
Reserved	22D	****	***		RD4	20		7	Not Connected
Open	22D				RD4	21		22.74	Not Connected
Open	22 D		****		RO4	22		22.52	Not Connected
Open	22D				RD4	23	TODO	2022	Not Connected
Analog Signal 1	22Đ	****	200-200-440 PM	881	RD4	24			Not Connected
Reserved	22D				RD4	25			Not Connected
Video 1 to Drawer High	22D		55.77	****	RD4	26			Not Connected
EEE 488 DAV	22D	****	2220		RD4	27		7777	Not Connected
EEE 488 NRFD	22D		***-		RD4	28	7077	****	Not Connected
THIS DWG IS USED FOR PIN	I ASSIGNMENTS:	l I THIS DW	G HAS NO ASS	I I SY THAT CONTA	INS FRACTUR	E CRITICAL	ELEMENTS		
		•	•				DWG NO.		
(1) PER MSFC-SPEC-521, T	ABLE 2.	1	NTERFACE CO	VTROL DRAWING	3	A		SLG461	15056
						REV		SHEET	2 OF 6

				DATA					
FUNCTION	CONTACT	AMPS	VOLTS	CIRCUIT	FROM	₽IN	то	PIN	REMARKS
	SIŻĖ			CLASS		NO.		NO.	
	22D		2077		RD4	29			Not Connected
ΣΣΕ.	22D				RD4	30			Not Connected
SE	22D				RD4	31	1	***	Not Connected
SE	22D		F503		RD4	32		****	Not Connected
)iscrete Shield	220		****		RD4	33		7	Not Connected
Open	220				RD4	34		8877	Not Connected
) Dpen	22D				RD4	35		m-n-n	Not Connected
ideo 1 to Drawer Shield	22D				RD4	36		4500	Not Connected
EEE 488 Ground	22D				RD4	37			Not Connected
EEE 488 Ground	22D				RD4	38			Not Connected
EEE 488 IFC	22D				RD4	39			Not Connected
SÉ	22D				RD4	40		****	Not Connected
SE.	22D				RD4	41			Not Connected
£E.	220				RD4	42			Not Connected
SE SE	220				RD4	43	****	***	Not Connected
nalog Ground 1	22D				RD4	44			Not Connected
Open	22D				RD4	45			Not Connected
ideo 1 to Drawer Low	22D				RD4	46			Not Connected
RS170 Video Out High	220		****	11 11	RD4	47	PR1D4	47	Video
EEE 488 NDAC	22D				RD4	48			Not Connected
EEE 488 Ground	220				RD4	49			Not Connected
)pen	220		***		RD4	50			Not Connected
PCB 01	22D		***		RD4	51		****	Not Connected
SE	22D				RD4	52			Not Connected
SE SE	22D		renn		RD4	53			Not Connected
)pen	22D		40.00		RD4	54			Not Connected
nalog Ground 2	22D				RD4	55			Not Connected
pen	22D		eann.	7777	RD4	56			Not Connected
HIS DWG IS USED FOR PIN	I ASSIGNMENTS.	I I THIS DW	G HAS NO ASS	I I SY THAT CONTA	AINS FRACTURI	E CRITICAL	ELEMENTS		
						SZE	DWG NO.	***************************************	
(1) PER MSFC-SPEC-521, T	ABLE 2.	1	NTERFACE CO	NTROL DRAWIN	IG	Α	SLG46115056		
						REV	•	SHEET	3 OF 6

				DATA					
FUNCTION	CONTACT	AMPS	VOLTS	CIRCUIT	FROM	PIN	TO	PIN	REMARKS
	SZE			CLASS		NO.		NO.	
RS170 Video Shield	22D				RD4	57	PR1D4	57	Video
EEE 488 Ground	22D		****		RD4	58		***	Not Connected
EEE 488 SRQ	220		****		RD4	59			Not Connected
EEE 488 Shield	220				RD4	60	***		Not Connected
PPCB 01 Low	22D				RD4	61	77.50		Not Connected
PPCB 02 Low	22D		7555		RD4	62			Not Connected
Open	22D		7777		RD4	63	PA PA 44-VA		Not Connected
Open	22D		****		RD4	64	****		Not Connected
Analog High 2	220			:	RD4	65			Not Connected
Open	22D			l l	RD4	66	****		Not Connected
RS422 Receive High	220			l IV	RD4	67	****	V 77.5	Not Connected
RS170 Video Out Low	22D		0.500		RD4	68	PR1D4	68	Video
EEE 488 Ground	22D				RD4	69			Not Connected
EEE 488 DIO5	22D	}			RD4	70			Not Connected
PPCB 01 Shield	22D				RD4	71	****	~~~	Not Connected
Ореп	22D				RD4	72		~~~	Not Connected
PPCB 02 Shield	22D		****		RD4	73		****	Not Connected
Орел	22D		****		RD4	74	***	****	Not Connected
Analog Shield	22D				RD4	75	****	****	Not Connected
Open	22D				RD4	76	***	****	Not Connected
RS422 Receive Shield	22D		****		RD4	77			Not Connected
RS422 Transmit High	22D		***		RD4	78			Not Connected
EEE 488 ATN	22D				RD4	79	2400	ma.c.c	Not Connected
EEE 488 IDIO6	22D	[RD4	80	77.55	****	Not Connected
EEE 488 DIO8	22D	}			RD4	81	****	*****	Not Connected
Open	22D		****		RD4	82			Not Connected
PPCB 02 High	22D		2200		RD4	83			Not Connected
pen	22D]			RD4	84		****	Not Connected
HIS DWG IS USED FOR PI	I I ASSIGNMEN	ITS. THIS	DWG HAS NO	I ASSY THAT C	ONTAINS FRACT	TURE CRITIC	CAL ELEMENTS		
						SIZE	DWG NO.		
(1) PER MSFC-SPEC-521,	TABLE 2.		INTERFACE CON	ITROL DRAWII	NG	A		SLG461	15056
·								SHEET	4 OF 6

				DATA					
FUNCTION	CONTACT	AMPS	VOLTS	CIRCUIT	FROM	PIN	ТО	PIN	REMARKS
	SIZE			CLASS		NO.		NO.	
Open	22D				RD4	85	****		Not Connected
Open	22D			~~~	RD4	86	***	7775	Not Connected
Open	22D				RD4	87		****	Not Connected
R\$422 Receive Low	22D			1V	RD4	88			Not Connected
RS422 Transmit Shield	22D	****		7000	RD4	89			Not Connected
IEEE 488 DIO7	22D				RD4	90		ea	Not Connected
IEEE 488 REN	22D				RD4	91			Not Connected
PPCB 03 Shield	220	~~~~	****		RD4	92	22.22		Not Connected
PPCB 03 High	22D				RD4	93	****	****	Not Connected
Open	22D		~~ ~ ~		RD4	94			Not Connected
Open	22D		****		RD4	95	~~~		Not Connected
Open	22D		****		RD4	96		2022	Not Connected
Time Distribution	22D		****		RD4	97			Not Connected
Video 2 to Drawer High	220		******	į į	RD4	98	77.00		Not Connected
RS422 Transmit Low	220			l IV	RD4	99	7704		Not Connected
IEEE 488 Ground	22D	[2222		RD4	100	****	7077	Not Connected
EEE 488 Ground	22D		***		RD4	101	***	2025	Not Connected
Open	220				RD4	102		7704	Not Connected
PPCB 03 Low	22 D				RD4	103	****		Not Connected
Open	22D		****		RD4	104	0000		Not Connected
Ethernet Transmit High	22D	????	2333	IV	RD4	105	PR1D4	105	Digital
Time Distribution	22Đ				RD4	106	7777		Not Connected
Fime Distribution	22D		*****		RD4	107	****	7770	Not Connected
Open	22D		DOTT		RD4	108	# # m.m.		Not Connected
Video 2 to Drawer Shield	220				RD4	109			Not Connected
RS170 Video Out 2 High	22D		0070		RD4	110	7076		Not Connected
Open	220	****			RD4	111	****	*****	Not Connected
Open	22D	70.57	****		RD4	112		****	Not Connected
HIS DWG IS USED FOR PIN	l l ASSIGNMENTS	! B. THIS D	WG HAS NO AS		TAINS FRACTUI	RE CRITICAI	L ELEMENTS		
							DWG NO.		· · · · · · · · · · · · · · · · · · ·
(1) PER MSFC-SPEC-521, T.	ABLE 2.	1	INTERFACE CO	NTROL DRAWING	3	A		SLG461	15056
						REV		SHEET	5 OF 6

				DATA					
FUNCTION	CONTACT	AMPS	VOLTS	CIRCUIT	FROM	PIN	TO	PIN	REMARKS
	SZE			CLASS		NO.		NO.	
PPCB 04 High	22D				RD4	113			Not Connected
PPCB 04 Shield	22 D	*****	277	7-7-	RD4	114		77.70	Not Connected
Open	22D	***	m.e. n. n	~~~	RD4	115	N W # M.	****	Not Connected
Ethernet Transmit Low	22 D	????	????	1V	RD4	116	PR1D4	116	Digital
Time Distribution	22D		****		RD4	117	4444	****	Not Connected
Ethernet Receive Shield	22D	0	0		RD4	118	PR1D4	118	Shield
Video 2 to Drawer Low	22D	2077	0775	****	RD4	119		77.50	Not Connected
RS170 Video Out 2 Shield	22Đ	7755	77.77		RD4	120	***		Not Connected
Continuity	22D]	RD4	121	RD4	9	Jumper
Open	22D				RD4	122			Not Connected
Open	22D			·	RD4	123	7077		Not Connected
PPCB 04 Low	22D	7000	7000		RD4	124			Not Connected
Open	22D		****		RD4	125			Not Connected
Ethernet Transmit Shield	22D	0	0		RD4	126	PR1D4	126	Shield
Open	22D				RD4	127	****		Not Connected
Ethernet Receive High	22D	????	????	I IV	RD4	128	PR1D4	128	Digital
Ethernet Receive Low	22D	????	????	I IV	RD4	129	PR1D4	129	Digital
Open	22D		7040		RD4	130			Not Connected
RS170 Video Out 2 Low	22D	***	1411		RD4	131		*****	Not Connected
				111111111111111111111111111111111111111					
	700000000000000000000000000000000000000								
THIS DWG IS USED FOR PIN AS	SIGNMENTS	.HR DWG	HAS NO ASSY	THAT CONTAI	INS FRACTURE (RITICAL FL	EMENTS		
D110 10 00ED 1 01(1 84 Ac		11100 100 8 800	,,,0,10,1001	GARLON AND COL	IND LINE ONE		DWG NO.		
(1) PER MSFC-SPEC-521, TAE	31 F 2	1	NTERFACE CON	ITROL DRAWI	vic.	A	L+1-140,	SLG461	15056
(1) - mic nime or ms mor dely their	rum Att	•	Con Go!			REV		SHEET	6 OF 6

		ELECTRICAL DATA IN	ITERFACE	CONTROL DWG	***************************************	
			РЈЗ	EXPERIMENT CONNECTOR NO		M112A
gramma me me me manara ma	omeninooccoorninanocno nomenono nota serva que escuestra	ensimiliari interesse anti misimiliari interessi periode anticopi di anticopi	<u>P2</u>	CABLE PLUG TYPE NO.		M642/1-1
EXPERIN	MENT (NAME AND I.D	. NUMBER)				
Auxila PJ3	ry ECG Port	J P				
<u> </u>	ntaninassidearassa saata s			TO: External ECG Device		
		NTERFACE CONTROL DR	AWNG			
PROJECT ENG.	PROJECT	SIGNATURE	DATE	NATIONIAL ACTION	VITICO	AND ODAOF ADMINISTRATION
FROME OF ENG.	FROESI	SIGIVA) URE	DATE			AND SPACE ADMINISTRATION CE CENTER HOUSTON, TEXAS
				Ultrasound A	ıxillary E	CG Port
				To Externa		
				CODE IDENT NO. #21356	SIZI A	!
				SCALE N/A	REV	

				DATA					
FUNCTION	CONTACT	AMPS	VOLTS	CIRCUIT CLASS	FROM	PIN NO.	ТО	PIN NO.	REMARKS
Sleeve (S) Tip (T)	N/A N/A				PJ3 PJ3	S T	P2 P2	S T	Ground AUX_ECG_IN

HIS DWG IS USED FOR PI						SIZE	I CAL ELEMENTS DWG NO.		
(1) PER MSFC-SPEC-521,	TABLE 2.	11	NTERFACE CON	TROL DRAWIN	lG	REV		SLG461150 SHEET	2 OF 2

APPENDIX D AUDIO/VIDEO INTERFACES

	ı	AUDIO/VIDEO INTERF,	ACE CONTROL DRA	WING				10410-1490-1490-1490-1490-1490-1490-1490
and had had had had had had had had had ha		<u> </u>	EXPERIMENT	CONNECTOR NO.	oommuniqui	MS3470L18-3	32P	
		P1	CABLE PLUC	G TYPE NO.		MS3476L18-3	328	······
	PERIMENT (NAME AND I.D. N U/S External Video I/O	J P	TO: 0	Common Video Cable				
Post in Community in the Community in th	INTI	ERFACE CONTROL DR	RAWING					
			1. '	Video stored and transmit	ted in I	HiVHS format		
PROJECTEN	G. PROJECT	SIGNATURE	DATE	NATIONAL AERONAUT LYNDON B. JOHNSON				
				Ultrasound Exter TO Common Vide	nal Vid	eo I/O Port		
				CODE IDENT NO. #21356	Α	DWG NO. SLG4611		
				SCALE N/A	REV		SHEET	1 OF

				DATA						
FUNCTION	CONTACT	AMPS	VOLTS	CIRCUIT	FROM	PIN	ТО	PN	REMARKS	
	SIZE			CLASS		NO.		NO.		
Video (Y) In (X)	20	1	1	П	J3	А	P1	А	Audio/Vi deo	
/ideo (Y) In (Y)	20	1	1	11	J3	В	P1	В	Audio/Video	
/ideo (Y) In (G)	20	1	0	IE .	J3	C	P1	C	Audio/Video	
lot Used	20		no en en		J3	E			Not connected	
\udio Left Out (G)	20		0	11:	J3	D	P1	D	Audio/Video	
lot Used	20				J3	F			Not connected	
lot Used	20				J3	G	ME ALL COM		Not connected	
/ideo C In (G)	20	1	0		J3	H	P1	Н	Audio/Video	
/ideo C In (X) 20 1 1 1 J3 J P1 J										
/ideo C In (Y)	20	1	1		J3	K	P1	K	Audio/Video	
/ideo C Out (G)	20	1	0		J3	L	P1	L	Audio/Video	
ludio Left Out (X)	20	1	1		J3	М	₽1	М	Audio/Video	
ludio Left In (G)	20	1	0		J3	N	P1	N	Audio/Video	
ludio Left In (X)	20	1	1		J3	Р	P1	P	Audio/Video	
ludio Left In (Y)	20	1	1		J3	R	P1	R	Audio/Video	
/ideo (Y) Out (X)	20	1	1		J3	s	P1	S	Audio/Video	
/ideo (Y) Out (G)	20	1	0		13	т	P1	Т	Audio/Video	
lot Used	20				J3	U	en en en		Not connected	
Not Used	20		~~~		J3	V			Not connected	
Not Used	20				13	W			Not connected	
lot Used	20				13	Х	 -		Not connected	
lot Used	20				J3	Υ	MANUAL MA		Not connected	
Audio Right In (G)	20	1	0	II II	J3	Z	P1	Z	Audio/Video	
						ALLA				
THIS DWG IS USED FOR I	I PIN ASSIGNMEI	I VTS. THIS	S DWG HAS NO	I ASSY THAT C	ONTAINS FRAC	 CTURE CRIT	ICAL ELEMENTS			
						SIZE DWG NO.				
(1) PER MSFC-SPEC-52	1, TABLE 2.	1	NTERFACE COM	ITROL DRAWIN	G	A SLG46115046				
						REV	······································		2 OF 3	

DATA										
FUNCTION	CONTACT SIZE	AMPS	VOLTS	CIRCUIT CLASS	FROM	PIN NO.	ТО	PIN NO.	REWARKS	
Video C Out (X)	20				J3	а	P1	а	Audio/Video	
Audio Right Out (G)	20		0		J3	b	P1	b	Audio/Video	
lot Used	20				J3	¢			Not Connected	
udio Right Out (X)	20			111	J3	d	P1	d		
lot Used	20				J3	е		***	Not Connected	
lot Used	20				J3	f			Not Connected	
lot Used	20				J3	g	wn.a.		Not Connected	
Audio Right In (X)	20				J3	ĥ	P1	h	Audio/Video	
Audio Right In (Y)	20				J3	j	P1	j	Audio/Video	
THIS DWG IS USED FOR F	 PIN ASSIGNME	NTS, THIS	S DWG HAS NO	ASSY THAT (CONTAINS FRAC	CTURE CRI	TICAL ELEMENTS DWG NO.			
(1) PER MSFC-SPEC-521, TABLE 2. INTERFACE CONTROL DRAWING					A		SLG461			
						REV		SHEET	3 OF 3	

		AUDIO/VIDEO INTI	ERFACE CON	ITROL DRAWING						
			J2 EXPERIMENT CONNECTOR NO.			MS27497T14F35S				
			<u>P1</u>	CABLE PLUG TYPE NO.		MS27473T14	F35P			
	ENT (NAME AND I.E	D. NUMBER)		TO: External Monitor Cable	(p/n: S	SEG46116113-301)			
		INTERFACE CONTROL	LDRAWING							
PROJECT ENG.	PROJECT	SIGNATURE	DAT	E NATIONAL AERONA	UTICS	AND SPACE ADMIN	NISTRATION	······································		
epsympania and a second a second and a second a second and a second and a second and a second and a second an	***************************************		***************************************	LYNDON B. JOHNS	ON SPA	SPACE CENTER HOUSTON, TEXAS				
				Ultrasound Mo	Ultrasound Monitor Port TO External Monitor Cable					
				CODE IDENT NO. #21356	SIZE A	DWG NO. SLG461	15051			
				SCALE N/A	REV		SHEET	1 OF		

DATA									
FUNCTION	CONTACT SIZE	AMPS	VOLTS	CIRCUIT CLASS	FROM	PIN NO.	TO	PIN NO.	REMARKS
Red	22D		1	- 11	J2	1	P1	1	Audio/Video
Ground	22D		0	11	J2	2	P1	2	Audio/Video
Green	22D		1		J2	3	P1	3	Audio/Video
Ground	22D	****	0		J2	4	P1	4	Audio/Video
Biue	22D	77.07	1		J2	5	P1	5	Audio/Video
Ground	22D		0	1 1	J2	6	P1	6	Audio/Video
Horizontal Sync	220		1		J2	7	P1	7	Audio/Video
Ground	22D	~~~~	0		J2	8	P1	8	Audio/Video
Vertical Sync	22D		1	-	J2	9	P1	9	Audio/Video
Ground	22D		0	į į	J2	10	P1	10	Audio/Video
VTR_+5V	22D	0.1	5		J2	11	P1	11	VTR FXN
END OF TAPE LED	22D	0.1	-		J2	12	P1	12	VTR FXN
RECORD LAMP LED	22D	0.1	-		J2	13	P1	13	VTR FXN
SHIELD	22D		<u></u>	111	J2	14	P1	14	SHIELD
THIS DWG IS USED FOR PIN	V ASSIGNMEN	TS. THIS	DWG HAS NO A	SSY THAT C	ONTAINS FRACTU				
(1) PER MSFC-SPÉC-521, TABLE 2. INTERFACE CONTROL DRAWING						SIZE	DWG NO.		
						Α	SLG46115051		
						REV SHEET 2 OF 2			2 OF 2

APPENDIX E THERMAL CONTROL INTERFACES

NOT APPLICABLE

LS-71040-2 E-1

APPENDIX F WASTE GAS VENT AND VACUUM INTERFACES

NOT APPLICABLE

LS-71040-2 F-1

APPENDIX G NITROGEN INTERFACES

NOT APPLICABLE

LS-71040-2 G-1

DISTRIBUTION LIST FOR LS-71040-2

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